(Translation)

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Title: Apparatus for Compressing and Molding Powder

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The apparatus for compressing and molding powder according to the present invention is of a doughnut shape. A part of the apparatus is shown in Fig. 2. The apparatus includes a rotational disk 1 rotatable at a predetermined speed in a direction indicated by the arrow. In the course of a 360° rotation of the rotational disk 1, a series of steps, such as a step of supplying a predetermined amount of material powder into a cavity, a step of compressing and molding the powder, and a step of taking out the molded article, are conducted.

The rotational disc 1 is provided with a plurality of vertically extending cylindrical cavities 2 formed in a certain circumference at predetermined intervals. In each cavity 2, there is disposed a lower rod 3 that vertically slides therein. A guide track 4 is arranged below the rotational disk 1 that controls a vertical movement of the lower rod 3 rotated in accordance with a rotational movement of the rotational disk 1. At predetermined positions above the rotational disk 1, upper rods (not shown) are inserted into the cavities 2 from above so as to compress, along with the lower rods 3, the powder filled in the respective cavities 2. The upper rods, the cavities 2, and the lower rods 3 together form molding means in this embodiment.

In this embodiment, a powder pusher (restraining member) 20 is disposed in a feed shoe 5, which is positioned above a D area into which excessive powder overflows, so as to be urged toward the cavities 2 by an urging mechanism. The powder pusher 20 restrains the overflow of the powder which has been made excessive by means for adjusting a powder amount.

According to the apparatus for compressing and molding powder in this embodiment, the powder P is supplied and filled into a maximum filling space formed in a C area on the guide track 4, the lower rods 3 are raised in the succeeding D area, and an overflow of the powder P in the space is restrained by the powder pusher 20. This restraining operation is performed under a certain urging force generated by a spring 22. Thus, even when an amount of the powder P supplied into the filling space formed in the C area varies, it is possible to fill the powder P at substantially a constant compression ratio, so that an amount of powder P filled in the cavities 2 can be made always uniform after the excessive powder overflowing from an upper end of the cavity 2 is removed by a leveling frame 10. Following thereto, by subjecting the powder P to a subsequent compressing and molding process, molded articles having the same weight can be successively, stably manufactured. As described above, since the powder pusher 20 compresses the powder P with a certain pressure to fill the same into the cavities 2, a filling density of the powder P relative to the cavities 2 can be elevated.